IN THE DRAWINGS

The attached sheets of drawings include changes to Figs. 11-15, 16a, 16b, 17a, 17b, 18a, and 18b. These sheets, which include Figs. 11-15, 16a, 16b, 17a, 17b, 18a, and 18b, replace the original sheets including Figs. 11-15, 16a, 16b, 17a, 17b, 18a, and 18b.

Attachment: Replacement Sheets

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Before turning to the outstanding Office Action, Applicant wishes to thank the Examiner for the courtesies extended during the personal interview of August 1, 2006. During the interview, the outstanding issues in the present application were discussed; however, no agreement was reached with regard to the ultimate patentability of the application, pending the Examiner's further search and consideration. The remarks below summarize the points of discussion that were made during the interview with respect to independent claims 1, 4, and 17.

Claims 1-26 are pending. Claims 1-5 are amended, and claims 8-26 are added. Support for the changes to the claims is found in the originally filed claims and in the specification, for example, at page 13, lines 17-25, page 14 lines 3-18, page 21, lines 1-2, and page 24, lines 1-13. Thus, the present amendment is not believed to raise an issue of new matter.

In the outstanding Office Action, the drawings were objected to for not having a legend in accordance with M.P.E.P. § 608.02(g). In response, Applicant submits herewith replacement drawing sheets for Figures 11-15, 16a, 16b, 17a, 17b, 18a, and 18b. The replacement sheets modify those drawings to include the legend "Background Art." As noted during the interview, the M.P.E.P. provides the "Prior Art" legend as an example and not a requirement. Additionally, it was noted that Figures 11, 15, 16a, and 16b could incorporate the invention of the present application (see, e.g., Specification, page 24, lines 8-13), in which case those drawing figures would not describe a conventional or prior art system.

On page 3 of the outstanding Office Action, Claims 1, 2, and 4-7 were rejected under 35 U.S.C. § 102(b) as being anticipated by Caldwell, Budzelaar, Shimada, or Akashi. On page 7 of the outstanding Office Action, independent Claim 3 was identified as allowable.

With respect to the rejection of Claims 1, 2, and 4-7, Applicant respectfully traverses these rejections on the grounds that the claims, as presently amended are patentably distinguishable over Caldwell, Budzelaar, Shimada, and Akashi.

Referring to the specific examples described in the specification of the present application, Applicant's invention relates to waveform generation by a D/A converter. The target waveform may be an approximated waveform or an ideal waveform without error that is desired to be output by the D/A converter. (Specification, page 13, lines 12-16.) According to the present invention, a combination of output values for the D/A converter and output times for the D/A converter are determined to generate an output waveform that approximates the target waveform. (Specification, page 13, lines 20-22.) An error or difference between the output waveform and the target waveform is reduced by varying the output time intervals of the D/A converter. (Specification, page 13, lines 22-25.) Advantageously, the present invention permits the error between the output waveform and the target waveform to be decreased and minimizes ripple, without requiring a change in the resolution of the D/A converter. (Specification, page 17, lines 1-5; page 19, lines 11-18.)

Turning now to the Caldwell reference, Caldwell discloses an FM waveform generator for radar. As indicated in the outstanding Office Action, Caldwell depicts a waveform generator WFG. Caldwell does not disclose "varying output values of [a] D/A converter to match values of the target waveform and varying output timings to match respective output values of the D/A converter with matched values of the target waveform," as in Claim 1. Accordingly, Caldwell is not believed to anticipate or make obvious the invention of Claim 1.

The Budzelaar reference discloses a multiple-output digital to analog converter having a waveform generator WG. Budzelaar does not disclose the step of "varying output values of [a] D/A converter to match values of the target waveform and varying output timings to match respective output values of the D/A converter with matched values of the target waveform," as in Claim 1. Therefore, Budzelaar does not anticipate or make obvious the invention of Claim 1.

The Shimada reference discloses a control for an image display. Shimada discloses that switching is made in synchronization with a clock and a digital-to-analog converter at a constant current source or a constant voltage source corresponding to each weight of a digital value. If the switching timing is shifted, a glitch pulse occurs. These glitch pulses are removed by interpolation. (Col. 11, lines 46-51.) Shimada does not teach or suggest a waveform generation method that includes the step of "varying output values of the D/A converter to match values of the target waveform and varying output timings to match respective output values of the D/A converter with matched values of the target waveform," as in Claim 1. Thus, Shimada is not believed to anticipate or make obvious the invention of Claim 1.

The Akashi reference discloses the pulse generator for use in a D/A converter. The D/A converter of Akashi generates a pulse train with pulse widths modulated in accordance with an input digital signal. (Abstract.) As noted in the outstanding Office Action, the D/A converter generates a pulse that switches a reference voltage to generate a pulse signal with a constant voltage. (Col. 1, lines 16-20.) However, Akashi does not teach or suggest a method that includes the step of "varying output values of the D/A converter to match values of the target waveform and varying output timings to match respective output values of the D/A converter with matched values of the target waveform," as in Claim 1. Thus, Akashi is not believed to anticipate or make obvious the invention of Claim 1.

Accordingly, Claim 1 and all claims dependent therefrom are believed to patentably distinguish over the references applied in the outstanding Office Action. Additionally, Claim 4 has been amended to recite "a time memory configured to store output time intervals of waveform output values preset discretely based on a target waveform, the waveform output values varying to match values of the target waveform, and the output time intervals varying to match respective waveform output values with matched values of the target waveform." Thus, Claim 4 and all claims dependent therefrom are also believed to patentably distinguish over the applied references. Likewise, new independent Claim 17 recites features similar to amended Claim 1 and is believed to be allowable for at least the same reasons as Claim 1.

New independent claims 20-23 have been added to define a radar device or an FM-CW radar device employing novel features of the present invention. None of the applied references are believed to anticipate or make obvious claims 20-23. Caldwell relates to a DDS (Direct Digittal Synthesis) FM waveform generating circuit for radar. Thus, Caldwell is different from FM-CW radar using a VCO (Voltage Controlled Oscillator). Also, Caldwell does not disclose a VCO and time memory for controlling the output timing of a D/A converter to occur at uneven intervals. Budzelaar, Shimada and Akashi are not in the technical field of FM-CW radar (for example, Shimada relates to a display controller) and do not disclose controlling the output timing of a D/A converter with output time intervals stored in the time memory in accordance with a minimum resolution (i.e., minimum quantized voltage) of the D/A converter. Further, Caldwell, Budzelaar, Shimada and Akashi do not identify (and consequently, do not address) the problem of deteriorating accuracy of the detection of distance from target that results from the transmission waveform being superimposed with ripple noise to cause a peak which is different from a peak frequency of the oscillator by an amount corresponding to the periodicity of the ripple noise. Therefore,

the applied references are different from the inventive radar device of Claims 20-23, which improves the accuracy of an output waveform by adjusting output intervals of a D/A converter to stabilize the frequency spectrum of the target.

Based on the foregoing, no further issues are believed to be outstanding in the present application. Therefore, Applicant respectfully requests that the present application be allowed and be passed to issue.

Respectfully submitted,

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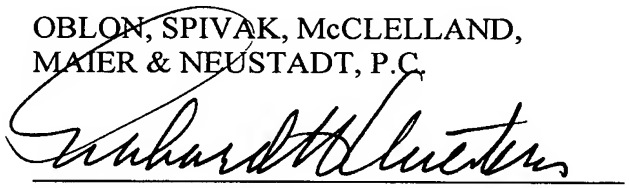

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